Department of Agriculture,
Washington, D. C., March 17, 1881.

REPORTS OF DRS. McLEAN, DETMERS, AND LAW, CONCERNING RECENT OUTBREAKS OF DISEASE AMONG CATTLE IN IOWA, MISSOURI, ILLINOIS, AND NEW YORK.

REPORTS OF DRS. McLEAN AND DETMERS.

Brooklyn, N. Y., *February* 19, 1881.

Hon. Wm. G. Le Duc,
Commissioner of Agriculture:

Sir: In accordance with instructions received from you, dated 1st instant, requesting me to investigate into the alleged outbreak of contagious pleuro-pneumonia among cattle introduced from the Eastern States into Illinois, Iowa, and Missouri, I, in company with Dr. Detmers, of Chicago, have made an exhaustive examination, and now beg to submit the following report:

On the 7th of February I examined the herds of Dr. Standley, near Bedford, Taylor County, Iowa, who, during the fall of 1880, had purchased something over 250 Eastern calves, and out of which up to this time he had lost some 75 head. On my arrival, I found lying frozen in his yard four calves, which had died on the previous day. A careful post-mortem examination of these having been made, unmistakable lesions of anthrax fever (black leg) were found in three, while in the fourth case pulmonary lesions were manifest, both lungs being the seat of lobular pneumonia, the effects of phthisis pulmonalis verminalis, the strongylus micrurus being found in large numbers in the bronchial passages. Upon inspecting the remainder of the herd, the majority of which exhibited an unhealthy appearance, one was selected for slaughter, which was admitted by the owner to be in a condition typical to that of those which had died exhibiting lung disease. The post-mortem in this case also showed that the animal had been affected with phthisis pulmonalis verminalis, and exhibited patches of lobular pneumonia.

I then went to Worth County, Missouri, and examined the herd of Mr. McCall, among whose eastern calves contagious pleuro-pneumonia was reported to have broken out. I found that he had originally purchased 60 of these animals, 7 of which up to date had died. Many of this herd were much emaciated. Upon examining one which I had selected for post-mortem examination, the same pathological lesions were found in the lungs as had been exhibited in that of Dr. Standley's.

I next inspected the herd of Mr. C. T. Ward, Mormontown, Taylor County, Iowa, who had in September, 1880, himself purchased and brought to his farm from the western part of the State of New York 210 calves, but of which he had to date lost 33. From the description of the symptoms which he gave me as having been exhibited by them before death, I would consider that 28 had been affected with anthrax (black leg), and 5 with some pulmonary trouble. Post-mortem examinations were made upon three carcasses, in which I found the same pulmonary lesions as in the calves of Dr. Standley and Mr. McCall.

The lungs of one of these animals I was able to take in a frozen state to Chicago, and the weather being favorable they were taken in the same perfect condition to your department in Washington for examination.

The herd of Mr. I. M. Legg, McDonough County, Illinois, was also examined. Here 77 Eastern calves had been introduced, of which at date 17 had died, as the owner said, from some lung complaint. A typical case having been selected, the same pulmonary lesions were found as in the other cases.

In none of the above herds were the external symptoms or physical signs of contagious pleuro-pneumonia present, while in all the characteristic pathological lesions were absent on post-mortem examination.

While the present alarm has thus been found to be groundless, too much care cannot be exercised in controlling the movements of cattle and stock-cars from our infected Eastern States, so as still to preserve the Western herds from this dread disease.

Very respectfully,

L. McLEAN, M. R. C. V. S.

CHICAGO, ILL., *February*, 1881.

Hon. WM. G. LE DUC,
Commissioner of Agriculture, Washington, D. C.:

SIR: In obedience to your instructions of the 1st instant, I made a thorough examination of the herds of Eastern calves owned respectively by Dr. J. R. Standley, in Platteville, Taylor County, Iowa; by Mr. McCall, in Worth County, Missouri; by Mr. Ward, in Mormontown, Taylor County, Iowa, and by Mr. Legg, near Doddsville, McDonough County, Illinois, for the purpose of ascertaining whether contagious pleuro-pneumonia of cattle, as reported, has been imported by or is existing in any of those herds of Eastern calves or not.

There were made in all nine post-mortem examinations, six of which on animals found dead, and three on animals killed by bleeding, and also carefully examined numerous living animals exhibiting symptoms of disease. I found in all the animals examined more or less affection of the lungs, and at the post-mortem examination more or less morbid changes in the respiratory organs, but found also that none of them were affected with the disease known as contagious pleuro-pneumonia of cattle, or bovine lung-plague. Therefore, as far as the present is concerned, all rumors to the contrary may hereby be set at rest.

Very respectfully submitted.

H. J. DETMERS.

OUTBREAK OF ANTHRAX AMONG CATTLE IN NEW YORK.

CORNELL UNIVERSITY, ITHACA, N. Y.,
March 9, 1881.

Hon. WM. G. LE DUC,
Commissioner of Agriculture:

SIR: In accordance with your telegram received March 6, I left the same day for Otto, Cattaraugus County, New York, and arrived there the following afternoon, having been delayed somewhat by late trains on the Erie Railroad.

The village of Otto I found to lie on Cattaraugus Creek, three miles northeast of Cattaraugus, the nearest station to the Erie Railway. The farm of Mr. Allen, on which the outbreak of cattle disease had occurred, lies on the high ground to the north of the creek, and about half a mile from the village. It was out of the way of all cattle traffic, and the cattle on the farm had all been raised there, even to the bull, which was one of the common breed, kept for the exclusive use of the herd. The conditions furnished presumptive evidence against infection from without, yet the report made by Dr. Lake, of Otto, and the fact that the tenant on the farm was a German, who might have had visits from friends (emigrants or otherwise) carrying with them infected clothing, made it all-important that the case should be fully investigated. The following is quoted from Dr. Lake's report:

"Within from five to eight days Mr. Allen had lost seven cows from a disease unknown to this part of the country. Of the seven cows above referred to I saw four opened on the 27th ultimo, all having the same general appearance. The symptoms of the three cows (seven sick) were as follows:

"The animals appear dull and sluggish, eyes without luster, respiration twenty-five per minute, short, dry cough, froth at the mouth; auscultation and percussion show changes in the lung tissue; the ear applied over the chest detects an absence of the natural soft breathing murmur, and in its stead a loud rasping sound, with crepitation and all the symptoms of pneumonia.

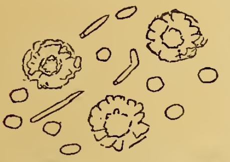
"Result of post-mortem examination of a cow that died this a. m. (March 2): The cavity of the chest contained from three to four pints of yellowish-green liquid, colored with blood. Both lungs diseased, the left more than the right, and weighed fifteen pounds; solid, firm, and resistant, and appear to be very much enlarged. The right lung of a deep-red color throughout, and elastic, and does not crepitate on pressure; the left lung covered with very dark red and black spots, and appears to be completely hepatized. The gall bladder appears to be very much distended and enlarged. This examination * * * was sufficiently * [clear] * to satisfy the mind of any medical man that the cow died of pneumonia."

Other reports gave the cases very grave aspect. Mr. Dake, about two miles higher up on the Cattaraugus Creek, and to the northeast of Mr. Allen's farm, had lost a cow within a few days. On a second farm of Mr. Allen's, nearly a mile due east of Cattaraugus, a cow was found dead in the stanchions on the morning of my arrival. On a farm of Mr. Darling's on the high ground to the west of Cattaraugus Creek, and about a mile and a half from the village of Cattaraugus, a cow had died the same (Monday) morning. Two more are alleged to have died within a day or two on the farm of Clark Scott, of East Otto.

Reaching Mr. Allen's farm at Otto, I found that ten cows had already perished in this one herd besides the one on the Cattaraugus place. A number more were sick, some very seriously. Four or five had aborted.

Symptoms.—Temperature in different cases 107°, 103.5°, 103°, 103°. The affected animal was dull, sluggish, with hind limbs drawn forward, and back slightly arched, as if from abdominal pain; flanks hollow; soft, doughy sensation in the region of the spleen; eyes dull, glassy, and retracted; the visible mucous membranes had a dusky hue; there was much debility, and in several instances the fœtal membranes projected from the vulva. In several a fœtid diarrhea existed. I learned further, from Dr. Pool, that the dung had been bloody in some of the earlier cases, and that in one case that he had opened, a portion of the intestine had been quite filled by a blood clot.

Lesions.—After the above symptoms I was quite prepared to find all the lesions of anthrax. In several carcasses, and in one very sick heifer, killed for the occasion, the lungs were sound, with the exception of some emphysema, and black spots of blood extravasation. In one animal only, on Mr. Allen's lower farm, did I find them gorged with blood. The spleen was smaller and less engorged than is usually the case in anthrax, not exceeding two pounds in any small two-year-old heifer, but it had a puffy, doughy feeling, which implied the abnormal state of the blood within it. The liver was generally firm and natural in appearance. The bowels, particularly the small intestine and the rectum, were more or less congested, the summits of the mucous folds above all having a very dark-red hue, which was manifestly largely due to blood extravasations. In addition it need only be named that the serous membranes and internal organs generally were more or less discolored by spots of extravasated blood (petechiæ), and that the blood in the heart and large vessels was abnormally dark colored, and fluid, or only partially coagulated into a very loose and diffluent clot. Blood received into a clean, stoppered bottle from the carotid artery of a dying heifer, and examined in the center of the clot 48 hours after, and before there was any sign of decomposition, showed the microscopic characters given in annexed slip. The peculiarities are the staff-shaped and small spherical bodies, and the crenated appearance of the blood globules.



Crenated blood globules, staff-shaped, ovoid, and spherical bodies in the blood of Mr. Allen's heifer. March 9, 1881.

Supposed causes.—In seeking to estimate the causes of the outbreak I found that the land was mainly loamy or gravelly, but was underlaid at certain points by a subsoil of *hardpan*, which determined the retention of moisture and favored the preservation of the anthrax germ. The drinking-water was from a spring, and evidently of excellent quality. The barns were fairly roomy and well aired, though when all the herd (39) were indoors in cold weather the air would be a little foul. The recent thaws occurring after an exceptionally severe winter would doubtless operate as exciting causes in inducing a febrile and susceptible condition of the animal's system, and in liberating any existing disease-germs that had been previously locked up in frost.

Regarding the introduction of the germ, a presumptive explanation is found in the history of the pigs on the place.

In the course of the last four years as many as 74 pigs have died on Mr. Allen's farm at Otto. Precisely how this mortality began I did not ascertain; but, on one or more occasions, Western pigs were brought in and mostly died. It is further significant that one year Henry Kehler, the tenant, put up a new pig-pen on fresh ground, and for that year he suffered no losses. The second year, however, in the new pens the disease broke out as before, the infection having, presumably, been introduced from the old pens or other part of the premises. The victims of this swine mortality were sometimes allowed to lie in the lot adjoining the pig-pen, and just across the road from the barns, until they became very offensive. The hogs were mostly buried on a flat space where a loamy soil lay over a dense *hardpan*, so that it did not readily dry out, and there was ample opportunity for the preservation of the anthrax germs. The cattle had had access to the lot adjoining the pig-pen, where the dead pigs had been frequently left. They also received hay from the meadow where the pigs had been buried. From either of these sources, therefore, they may have received the anthrax germs, as in both places those that had been preserved in the depth of the soil were liable to be brought up and deposited on the surface by the earth-worms. There they could be collected with the hay, licked from the surface of the soil, or blown on the winds to mingle with the food or water.

Prevention.—By way of prevention I recommended the destruction of carcasses by burning, and the disinfection of the barns, pig-pens, and yards with chloride of lime and quicklime, scattered in the yards and applied to the buildings in the form of a whitewash containing a quarter of a pound of chloride of lime to each gallon of water. The buildings were also to be fumigated with sulphur. The manure made for a fortnight before and for the same time after the outbreak was to be burnt. The graves of the pigs were to be carefully fenced in and no hay to be cut from their surface. Finally the whole herd of cows was to be put on the following: Chlorate of potassa, 2 drs.; bisulphite of soda, 4 drs.; carbolic acid, 1 drachm; to be dissolved in water and mixed in the food of each animal every morning. Each sick cow was to take in addition every night 1 drachm of iodide of potassium and 2 grains bichromate of potassa.

In conclusion I would remark that this outbreak is to be looked upon as essentially a local occurrence, and not likely to spread widely from herd to herd after the manner of an epizootic. From germs left in the soil in different fields a case or two may occur yearly for some time, but with due precaution as regards the sick and carcasses it should be entirely extirpated in a short time.

Respectfully submitted.

JAMES LAW.

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